

INFANTILE CATARACT.

Read in the Section of Ophthalmology, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

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PROFESSOR OF DISEASES OF THE EYE, EAR AND THROAT, IN THE MEDICAL DEPARTMENT OF WOOSTER UNIVERSITY; OCULIST AND AURIST TO THE CITY, WOMEN AND CHILDREN'S AND UNIVERSITY HOSPITALS.

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INFANTILE CATARACT.

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I selected this subject, not because I had any new facts to communicate or new operations to propose, or new theories to advance; but because my experience, observation and reading has led me to believe that, as a rule, we do not treat infantile cataract as successfully and as intelligently as we do many other eye diseases. If I am correct in this supposition, an interchange of ideas on this important subject at this time cannot fail to be of value.

I know of no subject more perplexing to the medical student than the classification of cataracts; they have been classified as to age as congenital, infantile, juvenile and senile, as to consistency as fluid, soft, mixed and hard. They may be capsular or lenticular. Capsular cataracts may be pyramidal anterior polar, posterior polars, or degenerative. Lenticular cataracts may be nuclear, cortical or zonular. Cataracts have been classified as to cause, as albuminuric, diabetic, traumatic, etc. They may be sim-

ple or complicated, primary or secondary, ripe or unripe, mature, immature or hypermature. This list might be continued almost indefinitely, but is sufficient to illustrate the protean forms in which lenticular opacity presents itself to the ophthalmic surgeon, and it is in the child that we find the most remarkable variation, in the cases brought to our notice. It was that prince of British ophthalmologists, Mr. George Critchett, in a lecture published in the *London Lancet* as long ago as 1855, who said that "Congenital cataract deserves very careful notice on account of the numerous aspects it assumes, the frequency with which it is overlooked, the baneful influence it may exert upon the prospects and career of the patients, and the favorable results of suitable treatment. The more we have an opportunity of observing these cases, the more evident does it become that nature revels in variety. Even in her morbid operations, when we fancy we have exhausted every possible form, some new manifestation presents itself."

For our present purpose it is not necessary to enter into an extended discussion of that much debated question, whether cataract is ever congenital, as it makes little practical difference (although the question may have an etiological value), whether it is present at birth or comes a few hours or days afterward. Dr. Alt¹ saw a case of total lenticular cataract in a baby 24 hours old. The writer saw a milky white lenticular cataract of one eye, other eye normal, in a child 24 days old. The mother and an intelligent

¹ American Journal of Ophthalmology, December, 1887.

nurse said the opacity was present at birth. Granting that cataracts may be congenital, it seems to me more desirable to substitute the term "infantile cataract," so as to include all those occurring in infants and young children. Practically many of these cases do not come under the observation of the oculist until later in life, often being overlooked until 5, 10, and even 15 or 20 years of age.

The most frequent form of infantile cataract is the lamellar or zonular. These cases are not infrequently associated with other congenital defects, the intellectual faculties often being very imperfect. Mr. N. C. Macnamara,² in his Presidential address to the Ophthalmological Section of the British Medical Association, remarked, in opening the discussion of this subject, that "it was well known that in foetal life branches of the hyaloid artery covered the posterior surface of the lens, and advanced forward over its margin, helping to form the membrana capsula pupilaris. If, from fault in the development of the eye, this vascular layer persisted after birth, it was apt to give rise to a film of connective tissue, extending to a greater or less extent over the posterior surface of the lens, and so forming a zonular cataract. In some instances a small patch alone was left to mark the spot at which the hyaloid artery had passed on to the lens, in other cases a central opacity existed, with radiating bands stretching toward the periphery of the lens. Microscopical specimens have demonstrated the fact that some of these zonular cataracts consisted of a film of connective tissue, together with re-

² British Medical Journal, September 12, 1891.

mains of the hyaloid artery." This seems to be the most satisfactory explanation yet offered of the pathology of zonular cataracts, and it seems much more rational to attribute the convulsions which have figured so largely in the literature of this subject to the same cause which brought about the defective development of the lens, the defective mental faculties, and the other bodily defects so frequently seen in these cases. An attempt was made to secure statistics bearing upon the relative frequency of cataracts associated with hare-lip, cleft palate, coloboma of the iris, total absence of iris, spina bifida, etc.; but could find nothing satisfactory. I regret exceedingly that I have not kept more accurate records of these cases occurring in my own practice, and yet the experience of any one man, unless he had exceptional advantages for observation, would not include enough of these cases to be of much practical value. Upon referring to my case books I find records of only two cases of congenital total absence of the iris, and in both of which cataracts were present. One of these had interstitial keratitis and typical Hutchinson teeth. The other was confined to a penal institution and a confirmed criminal. One lens was partially dislocated, and by throwing his head backward in a peculiar jerky manner he could throw his lens partially back like a door, out of the visual axis, and thus secure a fair amount of useful vision. He said his father's eye had just the same appearance. Of nine cases of coloboma of the iris two had cataract. I have met with two cases of cataract associated with

hare-lip, and one with spina bifida, and a number of cases had Hutchinson teeth.

If time permitted, it would be interesting to consider hereditary influence in the production of zonular cataract. A few years since I was called to operate upon three brothers, aged respectively 11, 21 and 29 years. There was one other son and three daughters in the family whose eyes are normal. The parents were cousins and one grandparent had senile cataract, otherwise the family history is good.

Next frequent to the zonular in infants is the anterior polar or pyramidal cataract. Notwithstanding the great diversity of opinion as to the etiology of these capsular cataracts, I have no doubt but that they are nearly all due to a perforation, or at least inflammation, of the cornea. It is not necessary that any corneal opacity should be present. About two years ago a child was presented at my clinic, 2 months old, with a history of having had a severe attack of ophthalmia neonatorum, with perforation of both corneæ. There was a dense white corneal opacity, including nearly the whole cornea, so that it was impossible to see the pupil of either eye. In the course of a few months the corneal opacities cleared up so that typical anterior polar cataracts could be seen, which were removed by the suction operation. At present there is no corneal opacity, and it would be impossible from any examination to say that there had been a perforation. It is surprising that so accurate an observer as Dr. Alt³ should not have seen such cases.

³ American Journal of Ophthalmology, December, 1887.

Not infrequently the lens undergoes degenerative changes, its fluid constituents become absorbed, leaving behind a tough dense membrane often containing more or less calcareous substance. I have met this condition most frequently in traumatic cases or in cases which have been operated upon repeatedly by the needle operation. I have come to look upon the usual needle operation as a frequent cause of this condition. How often after needling an infantile cataract several times have you found the pupil still occluded with the dense white remains of the capsule and shrunken, possibly calcareous lens, through which you have been able with great difficulty to tear a hole—a poor excuse for a pupil, but you congratulate yourself upon securing even that? This has been my unfortunate experience so frequently that I have almost abandoned the needle operation in cases of zonular as well as in pyramidal cataracts. After trying several operations my preference is for the linear extraction combined with the suction operation with Mr. Teale's instrument, in which the suction is made by the mouth of the operator. I have never been able to get a Bowman syringe that I could use so well.

The anterior capsule should be divided in both the verticle and horizontal meridians the full extent of the dilated pupil, and the lens pretty thoroughly broken up, but avoid perforating the posterior capsule. Keep the pupil well dilated, and in from three to five or six days, possibly seven, make a broad incision at the outer part of the cornea about two or three lines from the sclero-corneal margin, with the

keratome. In many cases by partially withdrawing the instrument and pressing it backward, and as the aqueous escapes, the softened lens matter runs out almost of its own accord, the remaining portion if any, can often be coaxed out with a little stroking of the opposite side of the cornea with the spatula. If there is a hard nucleus it can be delivered in the usual manner. If the pupillary area can not be thus readily cleaned the suction curette can be inserted, and by sweeping it around carefully the remaining cortical substance can be removed. Care should be taken not to injure the iris. In one instance in which I made the incision near the sclero-corneal margin, I had a slight anterior synechia, and the pupil is slightly oval in shape, but otherwise there have been no untoward symptoms. Since this accident occurred I have made the incision in the cornea further forward, and the danger of synechia is lessened, and the lens substance removed more easily; mydriatics can be used much more freely so as to keep the pupil well dilated without danger of prolapse. By this method patients are discharged in from two to three weeks, which under the old method would have occupied months, and often valuable time in the child's education sacrificed. In very young children on account of the difficulty in managing the patient, it may be preferable to resort to the needle operation. In these cases there is not the same necessity of securing useful vision at once, and yet in cases showing a disposition to develop nystagmus, I very much doubt the propriety of wasting time to allow the lens to absorb when it can be re-

moved so easily. The lens however, is absorbed much more quickly in those cases than in older children. I have followed the rule applicable to senile cataract, and operated but one eye at a time, and have several times questioned the advisability of making an iridectomy, and of permitting the lens to remain in one eye so as to allow of a certain amount of accommodation for near work.

I have under my care now, a bright little boy six years of age, whose vision in left eye was $\frac{2}{20}$ increased by dilating the pupil to $\frac{1}{2}\frac{5}{6}$, in the right eye $\frac{2}{20}$ with pupil dilated increased to $\frac{2}{7}$. I removed the lens of left eye by the method detailed above, and secured vision $\frac{2}{20}$ with + 10 D. Before the operation there was considerable nystagmus which has all disappeared. When the pupil of right eye is dilated with cocaine he can read Jaeger No. 3, and has considerable amplitude of accommodation, especially for larger type.

I should be pleased to know if any of the members of the Section have had any experience in this direction. Would the amount of accommodation in such an eye be of any practical advantage to the patient, and if so, would it be enough to compensate for the deformity of an iridectomy?

Would there be any objection to postponing farther operative interference until later in life, when the patient could express an intelligent opinion on the subject?⁴

It has been my custom to recommend operation

⁴ I think Mr. Critchett suggested this procedure many years ago, but I could find no record of cases in which it was practiced.

within the first year. I operated upon one case at two months. There are cases which it may be advisable not to operate upon at all.

A doctor friend of mine has a typical anterior polar cataract of both eyes, so prominent are they, that he always wears colored spectacles when in company, to hide them. He completed a regular collegiate course, graduated in medicine, and is now doing a large general practice.

If operative interference is decided upon, the question is to be answered whether the lens is to be removed or an iridectomy is to be performed.

I have followed the rule laid down by my old instructor, Mr. Streatfield, and removed the lens in all cases in which the vision could not be improved, by suitable correction of refractive errors, with the pupil widely dilated to $\frac{2}{5}$. Practically, this rule has left but few cases for iridectomy, and those cases in which I have made this operation have been rather disappointing in results, and in several instances a subsequent removal of the lens became necessary.

In conclusion I will offer the following for your consideration:

1. Infantile cataracts should be operated upon early, within the first year if possible.
2. In pyramidal and zonular cataracts in which vision cannot be improved to $\frac{2}{5}$ after fully dilating the pupil, removal of the lens is to be preferred to iridectomy.
3. Fluid cataracts are best removed at once by linear extraction.
4. Soft cataracts including zonular and capsular,

are best treated by first breaking up the lens thoroughly, and removing a few days later by the combined linear extraction and suction operation.

5. Simple decision is sufficient in very young infants, unless nystagmus should be present.

6. Only one eye should be operated upon at a time.

7. There are a few cases in which it may be advisable to extract one lens for distant vision and make an iridectomy on the other eye, so that a certain amount of accommodation may be preserved for near work.

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Discussion.

Dr. B. Alexander Randall, Philadelphia:—The point was raised in the paper in regard to zonular cataract as examined with the microscope, that a portion of the hyaloid artery of the foetus had been traced into the cataractous zone. This matter has escaped my observation, and is contrary to anything that I have studied in the matter. I would ask if I heard aright. The hyaloid artery with its capsular and pupillary net-work is wholly external to the lens-capsule, and I cannot conceive of its having any connection with the opaque laminae of lens-substance within.

Dr. A. R. Baker, Cleveland, Ohio:—I have presented this paper not so much because I had any new ideas to advance as with the hope of gaining some information upon the points presented. In reply to the question of Dr. Randall, I would say that I am indebted to Macnamara for that point in regard to the remains of the hyaloid artery being present in these cases. He says that microscopically, remains are to be seen in many of these cases.



